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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/928,673	08/13/2001	Thomas E. Miller	328 P 598	8170

7590 02/15/2005

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EXAMINER

ENSEY, BRIAN

ART UNIT	PAPER NUMBER
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2643

DATE MAILED: 02/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/928,673

Applicant(s)

MILLER, THOMAS E.

Examiner

Brian Ensey

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-35 is/are allowed.
- 6) ☒ Claim(s) 36-40 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

1. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over van Hal et al., U.S. Patent No. 6,658,134 in view of Brandt U.S. Patent No. 6,738,490.

Regarding claim 36, van Hal discloses an electroacoustic receiver comprising: a pair of spaced permanent magnets; a coil having a tunnel therethrough, the coil comprising a wire having a thickness and formed into a wire winding, the wire winding including a plurality of individual turns; and a reed armature having a central portion which extends through the coil (See Fig. 1 and col. 2, lines 53-66). Van Hal does not expressly disclose a plurality of turns having a winding pitch wherein a space between individual turns is at least three times the thickness of the wire. However, Brandt teaches a coil with widely spaced windings (See Fig. 3). It would have been obvious to one of ordinary skill in the art at the time of the invention to space windings at a distance equal to multiple thicknesses of the conductive element to prevent interaction between the windings and development of undesirable capacitance effects.

2. Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over van Hal et al., U.S. Patent No. 6,658,134 in view of Button U.S. Patent No. 5,828,767.

Regarding claim 37, van Hal discloses an electroacoustic receiver comprising: a pair of spaced permanent magnets; a coil having a tunnel therethrough; and a reed armature having a central portion which extends through the coil (See Fig. 1 and col. 2, lines 53-66). Van Hal does not expressly disclose the coil comprises a plurality of spaced, electrically connected winding modules. However, Button teaches a plurality of electrically connected spaced winding modules (16, 18) each module comprising a plurality of individual turns forming a plurality of individual

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layers (See Fig. 6 and col. 4, lines 20-33). It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize winding modules for multiple winding configurations for flux distribution over an increased surface area.

3. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over van Hal et al., U.S. Patent No. 6,658,134 in view of Chen U.S. Patent No. 5,124,681.

Regarding claim 38, van Hal discloses an electroacoustic receiver comprising: a pair of spaced permanent magnets; a coil having a tunnel therethrough, the coil comprising a winding of wire; and a reed armature having a central portion which extends through the coil (See Fig. 1 and col. 2, lines 53-66). Van Hal does not expressly disclose the winding having an end portion formed by a first plurality of individual turns originating at a point adjacent the tunnel and expanding radially outwardly to form a boundary layer, thereafter the wire being wound in second succession of individual turns to form a plurality of horizontally disposed layers, wherein a number of radially disposed layers in the end portion is at least a number of radially disposed layers in at least one horizontally disposed layer in the plurality of horizontally disposed layers. However, Chen teaches the winding having an end portion formed by a first plurality of individual turns originating at a point adjacent the tunnel and expanding radially outwardly to form a boundary layer, thereafter the wire being wound in second succession of individual turns to form a plurality of horizontally disposed layers, wherein a number of radially disposed layers in the end portion is at least a number of radially disposed layers in at least one horizontally disposed layer in the plurality of horizontally disposed layers. (See Fig.3 and col. 3, lines 1-16). It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize a boundary layer and thereafter wind the wire in second succession of individual turns to

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form a plurality of horizontally disposed layers to provide improved flux density in a smaller coil.

4. Claim 39 rejected under 35 U.S.C. 103(a) as being unpatentable over van Hal in view of Toki U.S. Patent No. 5,858,154.

Regarding claim 39, van Hal discloses a receiver comprising: a pair of spaced permanent magnets; a coil having a tunnel therethrough and a reed armature having a central portion which extends through the coil. Van Hal does not expressly disclose the coil comprises a first wire winding layer, a second winding layer, and an insulating layer wherein the insulating layer is positioned between the first and second winding layers. However, Toki teaches insulating material between successive layers of the plurality of winding layers to vary coil inductance (See Fig. 3 and col. 4, lines 27-40). It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize insulating material between successive layers of the plurality of winding layers to vary coil inductance.

Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over van Hal in view of Takashi Japanese Patent Application Publication 10-032897.

Regarding claim 40, van Hal discloses a receiver comprising: a pair of spaced permanent magnets; a coil having a tunnel therethrough and a reed armature having a central portion which extends through the coil. Van Hal does not expressly disclose the coil having a plurality of alternating turns of conductive material and non-conductive material. However, Takashi teaches a coil for a receiver driver coil having a plurality of spaced turns of conductive material and said spaces filled with a non-conductive material to provide a thin heat resistant transducer coil (See Fig. 1 and translation paragraph 0016). It would have been obvious to one of ordinary skill in the

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art at the time of the invention that insulating material between successive spaced turns of the plurality of winding layers to provide a thin profile transducer coil with the side benefit of reducing undesirable parasitic capacitances.

Response to Arguments

Applicant's arguments, see applicant's arguments pages 10 and 11, filed 10/06/2004, with respect to claims 1-35 have been fully considered and are persuasive. The rejection/objection of claims 1-35 has been withdrawn.

Applicant's arguments with respect to claim 36, filed 10/06/2004, have been fully considered but they are not persuasive.

Regarding claim 36, the examiner would like to point out that the applicant merely recites an alternative coil construction and claims no benefit or purpose to this configuration. Further, Brandt clearly shows spacing between coil windings. It is well known that every coil exhibits properties of parasitic capacitance due to adjacent conductors being separated by an insulating cover. It is also well known that increasing the space between windings provides the same effect as increasing the space between the plates of a capacitor which is to decrease the capacitance since capacitance is inversely proportional to the space between the conductive plates. $\{C = \epsilon A / d\}$, where C = capacitance and d = distance between the plates. It is obvious that increasing the space between the winding turns will provide the benefit of parasitic capacitance reduction.

Applicant's arguments with respect to claims 37, 38, 39 and 40 have been considered but are moot in view of the new ground(s) of rejection.

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Further regarding claims 37, 39 and 40, the examiner would like to point out that the applicant merely recites an alternative coil construction and claims no benefit or purpose to this configuration and that all the disclosed configuration inherently by design provide a side benefit of reduction of parasitic capacitance as discussed above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Ensey whose telephone number is 703-305-7363. The examiner can normally be reached on Mon-Fri: 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz can be reached on 703-305-4708. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

Or faxed to:


(703) 872-9306, for formal communications intended for entry and for informal or draft communications, please label "PROPOSED" or "DRAFT".

Hand-delivered responses should be brought to: Customer Service Window, Randolph Building, 401 Dulany Street, Arlington, VA 22314

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BKE
February 7, 2005


CURTIS KUNTZ
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